

Patent claims

1. Gear system to drive an extruder with several axially parallel shafts, rotating in the same direction, arranged around a circle at equal angles with respect to each other, which are attached in a torque-proof manner to conveyor elements wherewith adjacent shafts engage with each other, wherein the driven shafts of the gear system are attached coaxially and in a torque-proof manner to the shafts, each driven shaft has a pinion, the driven pinions engage with an externally-toothed drive wheel provided on a central drive shaft and with a surrounding internally-toothed hollow gear wheel, axially offset pinions (19, 20) are arranged on adjacent driven shafts (11) and the drive wheels of the central drive shaft and the hollow gear wheels are arranged in similarly offset fashion, characterized in that the hollow gear wheels (24, 25) have an external tooth gearing (51), with which a drive wheel (26 to 29) on an outwardly-located drive shaft (15 to 18) engages, so that each hollow gear wheel (24, 25) is driven with the same torque and half of the torque of each driven pinion (19, 20) is generated via the central drive wheel (21, 22) and half via the hollow gear wheel (24, 25).
2. Gear system according to claim 1 and 2, characterized in that the outwardly-located drive shafts (15 to 18) have different lengths as a result of the axially offset driven pinions (19,

20) of the adjacent driven shafts (11) , and the short outwardly-located drive shafts (16, 18) have a smaller diameter than the long outwardly-located drive shafts (15, 17) .

3. Gear system according to claim 1 or 2, characterized in that at least two outwardly-located drive wheels (26 to 29) arranged at equal angles with respect to each other engage with the external tooth gearing of the hollow gear wheel (24, 25) .
4. Gear system according to claim 1, characterized in that to drive the central drive shaft (14) and the outwardly-located drive shaft (15 to 18), a coaxial floating bush (40) is provided with an internal tooth gearing (45) and an external tooth gearing (44), wherein the internal tooth gearing (45) engages with an external tooth gearing on the inwardly-located drive shaft (14) and the external tooth gearing (44) engages with an internal tooth gearing of a hollow gear wheel (47), the external tooth gearing of which engages via an axially offset reversing wheel (48) with a toothed wheel (49, 50) on the outwardly-located drive shaft (15 to 18) .
5. Gear system according to claim 4, characterized in that the external tooth gearing (44) and the internal tooth gearing (45) are formed by skew bevel gearings opposite each other.

6. Gear system according to claim 4 or 5,
characterized in that the bush (40) is driven via a
straight tooth gearing (41).
7. Gear system according to claim 1, characterized in
that it is formed, as the drive for an extruder
(1), with at least eight axially-parallel shafts
(3) rotating in the same direction.